

CLAIMS

What is claimed is:

- 1 1. An auxiliary valve positioned in an intake passageway of a four-cycle internal
2 combustion engine for controlling the flow of air/fuel mixture into a combustion
3 chamber, comprising:
4 a through passage, said through passage defined by a top wall, a bottom wall,
5 and opposing side walls;
6 a swingable door openable and closable in relation to said through passage; and
7 a spring loaded assembly biasing said swingable door closed.
- 1 2. An auxiliary valve according to claim 1, further comprising an attachment bracket
2 secured to said top wall, said attachment bracket serving to secure the auxiliary valve
3 inside the intake passageway.
- 1 3. An auxiliary valve according to claim 1, further comprising a bracket secured to said
2 bottom wall, said bracket having a lip configured to catch said swingable door in the
3 closed position, and retard the opening of said swingable door.
- 1 4. An auxiliary valve according to claim 3, wherein said lip is curved to guide said
2 swingable door into the closed position.
- 1 5. An auxiliary valve according to claim 1, wherein said spring loaded assembly
2 includes a boss and a latching member partially disposed within said boss, said
3 latching member capable of movement in association with the opening and closing
4 of said swingable door.
- 1 6. An auxiliary valve according to claim 5, wherein said latching member extends
2 through a door aperture in said swingable door, and interaction between said latching
3 member and said door aperture allows said swingable door to open and close.
- 1 7. An auxiliary valve according to claim 6, further comprising a plug attached to said
2 latching member, wherein said plug is slidably supported by said boss, and said plug
3 and said latching member are biased to close said swingable door.

- 1 8. An auxiliary valve according to claim 7, wherein said boss is located inside said
2 through passage on said top wall, and includes a first aperture, a second aperture, a
3 divider positioned between said first aperture and said second aperture, and a
4 bushing-like hole in said divider, said latching member moving within said first
5 aperture, said second aperture, and said bushing-like hole.
- 1 9. An auxiliary valve according to claim 8, further comprising a spring positioned
2 around said latching member, and extending from said divider to interface with said
3 plug, said spring biasing said plug away from said divider.
- 1 10. An auxiliary valve according to claim 9, wherein said swingable door has a rounded
2 upper edge surface allowing said swingable door to pivot.
- 1 11. An auxiliary valve according to claim 10, wherein said latching member is hook
2 shaped, and includes a horizontal portion, a vertical portion, and a curved portion
3 extending between said horizontal portion and said vertical portion, said curved
4 portion interacting with said door aperture according to the bias of said spring and
5 the cycles of operation of said four-cycle internal combustion engine.
- 1 12. An auxiliary valve according to claim 11, wherein, when said four-cycle internal
2 combustion engine is operating at low speeds, the bias of said spring is overcome
3 and said swingable door opens after the intake stroke begins.
- 1 13. An auxiliary valve according to claim 11, wherein, when said four-cycle internal
2 combustion engine is operating at low speeds, the bias of said spring closes said
3 swingable door after the intake stroke ends.